APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/251,998	02/19/1999	RICHARD BAXTER HULL	5-4-1-4	3940

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RYAN, MASON & LEWIS LLP
1300 POST ROAD
SUITE 205
FAIRFIELD, CT 06430

EXAMINER
ENGLAND, DAVID E

ART UNIT	PAPER NUMBER
2143	

DATE MAILED: 12/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	09/251,998	HULL ET AL.
	Examiner	Art Unit	
	David E. England	2143	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>29 June 2004</u>.
2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-21</u> is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) <u>1-21</u> is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☒ The drawing(s) filed on <u>27 January 2003</u> is/are: a)☐ accepted or b)☒ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a)☐ All b)☐ Some * c)☐ None of:
      1.☐ Certified copies of the priority documents have been received.
      2.☐ Certified copies of the priority documents have been received in Application No. _____.
      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
        application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .
5)☐ Notice of Informal Patent Application (PTO-152)
6)☐ Other: _____.

DETAILED ACTION

1.   Claims 1 – 21 are presented for examination.

Response to Arguments

2.   In view of the appeal brief filed on 06/29/2004, PROSECUTION IS HEREBY

REOPENED. *New grounds of rejection are-* set forth below.

      a.   To avoid abandonment of the application, appellant must exercise one of the

following two options:

            (1)   file a reply under 37 CFR 1.111 (if this Office action is non-final)

or a reply under 37 CFR 1.113 (if this Office action is final); or,

            (2)   request reinstatement of the appeal.

      b.   If reinstatement of the appeal is requested, such request must be accompanied by

a supplemental appeal brief, but no new amendments, affidavits (37 CFR 1.130, 1.131 or

1.132) or other evidence are permitted. See 37 CFR 1.193(b)(2).

3.   Applicant's arguments, see page 4 of Arguments, filed 06/29/2004, with respect to

Obvious-type Double Patenting have been fully considered and are persuasive. The rejection of

Obvious-type Double Patenting has been withdrawn.

4.   Applicant's arguments with respect to claims 1 – 21 have been considered but are moot in

view of the new ground(s) of rejection.

Drawings

5.   The drawings are objected to under 37 CFR 1.83(a). The drawings must show every

feature of the invention specified in the claims. Therefore, the "determining whether a task is

eligible for eager execution by considering at least (1) a state of the task and (2) whether

execution of the task results in the initiation of a side-effect action" must be shown or the

feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to

the Office action to avoid abandonment of the application. Any amended replacement

drawing sheet should include all of the figures appearing on the immediate prior version

of the sheet, even if only one figure is being amended. The figure or figure number of an

amended drawing should not be labeled as "amended." If a drawing figure is to be

canceled, the appropriate figure must be removed from the replacement sheet, and where

necessary, the remaining figures must be renumbered and appropriate changes made to

the brief description of the several views of the drawings for consistency. Additional

replacement sheets may be necessary to show the renumbering of the remaining figures.

The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as

per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the

changes are not accepted by the examiner, the applicant will be notified and informed of

any required corrective action in the next Office action. The objection to the drawings

will not be held in abeyance.

Claim Rejections - 35 USC § 112

6.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7.   Claims 1 – 21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

8.   The limitations of claims 1 and 12 that state, "determining whether a task is eligible for eager execution by considering at least (1) a state of the task and (2) whether execution of the task results in the initiation of a side-effect action", is unclear in the specification. Although, there are areas in the specification that state the word "side-effect action", it is unclear as to what/where specifically the execution of the task resulting in a initiation of a side-effect action is included in the eligibility for eager execution. Applicant is asked to point to specific areas in the specification that correlate to the drawing of the invention.

9.   Claims 2 – 11 and 13 – 21 are rejected under 35 U.S.C. 112, second paragraph, for there dependency on claims 1 and 12.

Claim Rejections - 35 USC § 102

10.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United
> States before the invention thereof by the applicant for patent, or on an international application by another who
> has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention
> thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999

(AIPA) and the Intellectual Property and High Technology Technical Amendments Act

of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly

from an international application filed before November 29, 2000. Therefore, the prior art

date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the

AIPA (pre-AIPA 35 U.S.C. 102(e)).

11.   Claims 1 – 3, 5, 9, 12 – 14 and 16 are rejected under 35 U.S.C. 102(e) as being

anticipated by Borkenhagen et al. U.S. Patent No. 6697935 (hereinafter Borkenhagen).

12.   As per claim 1, as closely interpreted by the Examiner, Borkenhagen teaches a method

for operation of a workflow system for processing an object by executing a plurality of tasks, one

or more of said tasks each having one or more associated enabling conditions indicating whether

the task is to be executed for said object, (e.g. col. 5, line 66 – col. 6, line 8, *"...a plurality of*

bits, each associated uniquely with one of a plurality of thread switch control events...",

interpreted as enabling conditions setting), and wherein execution of at least one of said tasks

results in initiation of a side-effect action performed by a component external to said workflow

system, said method comprising the steps of, (e.g. col. 21, lines 12 – 26, *"external event"*):

13.   determining whether a task is eligible for eager execution by considering at least (1) a

state of the task, (e.g. col. 18, line 64 – col. 19, line 20), and

14.   (2) whether execution of the task results in the initiation of a side-effect action, (e.g. col.

18, lines 37 – 51, *"The priorities of the threads can be adjusted by the thread switch manager*

software through the use of one or more instructions, or by hardware in response to an event.");

15.   executing the task using eager execution if the task is determined to be eligible for eager

execution, (e.g. col. 18, line 64 – col. 19, line 20).

16.   As per claim 2, as closely interpreted by the Examiner, Borkenhagen teaches determining

that a particular task whose execution results in the initiation of a side-effect action is eligible for

execution only if it is determined that the enabling condition associated with the particular task

will evaluate to true as determined by the state of the particular task, e.g. col. 20, lines 7 – 34,

"...thread switch control register 410 has a value of one...").

17.   As per claim 3, as closely interpreted by the Examiner, Borkenhagen teaches determining

that a particular task whose execution does not result in the initiation of a side-effect action is

eligible for eager execution prior to determining that the one or more enabling condition

associated with the particular task will evaluate to true, as determined by the state of the

particular task, (e.g. col. 20, lines 35 – 57).

18.   As per claim 5, as closely interpreted by the Examiner, Borkenhagen teaches whether the

task contributes to the production of a target value, (e.g. col. 3, line 55 – col. 4, line 6).

19.   Claim 9, 12 – 14 and 16 are rejected for similar reasons as stated above.

Claim Rejections - 35 USC § 103

20.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

21.   Claims 4, 6, 7, 8, 15, 17, 18 and 19 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Borkenhagen (6697935) in view of Boutaud et al. (6253307) (hereinafter

Boutaud).

22.   As per claim 4, Borkenhagen teaches all that is disclosed above but do not specifically

teach partially evaluating said enabling conditions. Boutaud teaches partially evaluating said

enabling conditions, (e.g. col. 45, line 58 – col. 46, line 41, *"If the test is true, the next*

instruction(s) are executed. If the condition is false, each conditioned instruction is replaced by

a NOP."). It would have been obvious to one of ordinary skill in the art at the time the invention

was made to combine Boutaud with Borkenhagen because utilizing a very common

algorithm/programming code, (i.e. "If, Then, Else"), would cause for a faster evaluation of

enabling conditions, (i.e. skipping other conditions in the "Else" branch, example "else (End)").

23.   As per claim 6, Borkenhagen teaches all that is disclosed above but do not specifically

teach determining that a particular task is unneeded for processing of the object based at least in

part on partial evaluation of an enabling condition of a task which depends on output of said

particular task. Boutaud teaches determining that a particular task is unneeded for processing of

the object based at least in part on partial evaluation of an enabling condition of a task which

depends on output of said particular task, (e.g. col. 45, line 58 – col. 46, line 41). It would have

been obvious to one skilled in the art at the time the invention was made to combine Boutaud

with Borkenhagen because it would be advantageous for a system to utilize a very common

algorithm/programming code in many different application throughout the system, (i.e. using for

side-effects and tasks), and is therefore utilized for similar reasons as stated above

24.   Claim 7 is rejected for similar reasons as stated above because if a system could

determine that a task is unneeded for processing of the object then it is obvious for the system to

know that the other tasks are needed, "necessary" for processing. If not, then the system would

just label all the tasks that are unneeded and no tasks would be processed.

25.   Claims 8, 15, 17, 18 and 19 are rejected for similar reasons as stated above.

26.   Claims 10, 11, 20, 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Borkenhagen (6697935) in further view of Van Praet et al. (5854929) (hereinafter Van Praet)

and Smith et al. (5561762) (hereinafter Smith).

27. As per claim 10, Borkenhagen teaches all that is disclosed above but do not specifically teach wherein a memory of said workflow system stores a graph representing data flow dependencies and enabling flow dependencies between tasks and enabling conditions, said method further comprising the step of:

28. propagating changes through said graph based on new outputs of completed tasks. Van Praet teaches wherein a memory of said workflow system stores a graph representing data flow dependencies, (e.g. col. 8, lines 49 – col. 9, *"enabling condition"*, line 52 & col. 22, lines 7 – 14 & Figs. 7 – 11), and enabling flow dependencies between tasks and enabling conditions, (e.g. col. 8, lines 49 – col. 9, *"enabling condition"*, line 52 & col. 22, lines 7 – 14 & Figs. 7 – 11). It would have been obvious to one skilled in the art at the time the invention was made to combine Van Praet with Borkenhagen because it would be more efficient if a user had a record of graph representation of the flow dependencies between tasks and enabling conditions so to update a system and keep records of up-to-date information. If records were not updated, the system could call in information that is out-of-date and cause errors in the system.

29. Van Praet does not specifically teach said method further comprising the step of:

30. propagating changes through said graph based on new outputs of completed tasks. Smith teaches said method further comprising the step of:

31. propagating changes through said graph based on new outputs of completed tasks, (e.g. col. 5, line 51 – col. 6, line 50). It would have been obvious to one skilled in the art at the time the invention was made to combine Smith with the combine system of Borkenhagen and Van Praet because of similar reasons as stated above.

32.   As per claim 11, Borkenhagen teaches all that is disclosed above but do not specifically

teach said step of propagating changes is based on predefined propagation rules. Van Praet

teaches said step of propagating changes is based on predefined propagation rules, (e.g. col. 11,

line 9 – col. 12, line 60). It would have been obvious to one skilled in the art at the time the

invention was made to combine Van Praet with the combine system of Borkenhagen and Smith

because it would be more efficient for a user to keep track of trends in new outputs of completed

tasks and enabling conditions if there were a set of predefined propagation rules, (i.e.

algorithms), to aid in the graphing of new outputs of completed tasks and enabling conditions.

33.   Claims 20 and 21 are rejected for similar reasons as stated above.

Conclusion

34.   The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure.

35.   a.   Doing et al. U.S. Patent No. 6018759 discloses Thread switch tuning tool for

optimal performance in a computer processor.

36.   b.   Nilsen U.S. Patent No. 6438573 discloses Real-time programming method.

37.   c.   Borkenhagen et al. U.S. Patent No. 6212544 discloses Altering thread priorities in

a multithreaded processor.

38.   d.   Diepstraten et al. U.S. Patent No. 6260150 discloses Foreground and background

context controller setting processor to power saving mode when all contexts are inactive.
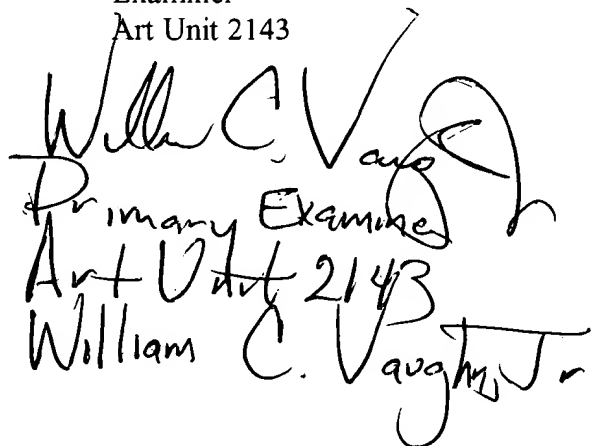

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to David E. England whose telephone number is 571-272-3912.

The examiner can normally be reached on Mon-Thur, 7:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, David A. Wiley can be reached on 571-272-3923. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

David E. England
Examiner
Art Unit 2143

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